CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER No. 89-146
NPDES NO. CA0028886

REVISION AND RE-ISSUANCE OF WASTE DISCHARGE REQUIREMENTS FOR:

TRW INC.,
825 STEWART DRIVE
CITY OF SUNNYVALE
SANTA CLARA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, (hereinafter called the Board), finds that:

1. TRW Microwave Inc.and TRW Inc., (hereinafter called the discharger) manufactured printed circuits from 1974 to August 1987 at a facility located on 825 Stewart Drive, Sunnyvale (See Site Location Map). Manufacturing activity at the site is currently operated by FEI Microwave Inc. By application dated April 14, 1989 the discharger has applied for issuance of waste discharge requirements and a permit to discharge waste under the National Pollutant Discharge Elimination System (NPDES).

2. The 825 Stewart Drive site was proposed for inclusion on the National Priority List as a Superfund site in June 1988.

3. Studies by the discharger show that groundwater beneath the site has been contaminated by organic solvents such as trichloroethylene (TCE), 1,1,1, trichloroethane (TCA), perchloroetyhylene (PCE), 1,2-dichloroethylene (1,2-DCE), vinyl chloride, and 1,2-dichlorobenzene.

4. The discharger has installed seven groundwater extraction wells and an eductor to remove contaminants from the shallow groundwater. Extraction and treatment have been ongoing at this facility since 1985. The extracted groundwater, varying from approximately 30,000 to 60,000 gpd, is treated by an air stripping system (see Groundwater Extraction System Diagram) prior to discharge to a storm drain tributary of Calabazas Creek and San Francisco Bay.

   The effluent from the treatment system has been monitored under the terms of Board Order No. 85-120. The dominant constiuent of concern that has been

measured in the effluent is TCE at concentrations consistently below 5 µg/l for the past year.

5. The Regional Board adopted a revised Water Quality Control Plan for the San Francisco Bay Region (Basin Plan) on December 16, 1986. The Basin Plan contains water quality objectives for Calabazas Creek and South San Francisco Bay and contains discharge prohibitions applicable to shallow water discharges in these areas.

6. The beneficial uses of Calabazas Creek and South San Francisco Bay are:

a) Non-contact water recreation
b) Wildlife habitat
c) Preservation of rare and endangered species Estuarine habitat
d) Warm fresh water and cold fresh water habitat Fish spawning and migration
e) Industrial service supply
f) Shellfishing
g) Navigation
h) Open commercial and sport fishing

7. Effluent limitations of this Order (as shown in Table 1 below) are based on the Basin Plan, State and U.S. Environmental Protection Agency (EPA) plans and policies, best available treatment economically available (BATEA), and best engineering judgement. Limits in this Order are based on the quality of the groundwater following treatment.

8. The Basin Plan prohibits discharge of wastewater which has "particular characteristics of concern to beneficial uses" (a) "at any point in San Francisco Bay south of the Dumbarton Bridge" and (b) "at any point where the wastewater does not receive a minimum initial dilution of at least 10:1 or into any nontidal water, deadend slough, similar confined water, or any immediate tributary thereof."

9. The Basin Plan allows for exceptions to the prohibitions referred to in Finding 8 above when it can be demonstrated that a net environmental benefit can be derived as a result of the discharge.

10. Exceptions to the prohibitions referred to in Finding 8 are warranted because the discharge is an integral part of a program to cleanup polluted groundwater and thereby produce an environmental benefit, and because receiving water concentrations are expected to be below levels that would effect beneficial uses.

11. The Basin Plan prohibits discharge of "all conservative toxic and deleterious substances, above those levels which can be achieved by a program acceptable to the Board, to waters of the Basin." The discharger's groundwater extraction and treatment system and associated operation, maintenance, and monitoring plan constitutes an acceptable control program for minimizing the discharge of toxicants to Calabazas Creek.

12. The issuance of waste discharge requirements for the discharge is exempt from the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code (CEQA) pursuant to Section 13389 of the California Water Code.

13. The Board has notified the discharger and interested agencies and persons of its intent to issue waste discharge requirements for the discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

14. The Board, in a public meeting on September 20, 1989, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the discharger, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

A. EFFLUENT LIMITATIONS

1. The discharge of waste containing constituents in excess of the following limits is prohibited, the limit on total VOC's shall revert to 5 μg/l after one year unless the discharger demonstrates that the release of up to 25 μg/l does not constitute an increased risk above the 10^{-6} risk level or that recharge to groundwater does not occur:

TABLE 1

Constituent	Instantaneous Maximum Limit (μg/l)
VOC's	
Trichlorofluoromethane	5.0
1,1,1-trichloroethane	5.0
Tetrachloroethylene	4.0
Trichloroethylene	5.0
1,1 Dichloroethylene	5.0
Vinyl Chloride	0.5
1,2-Dichloroethylene	6.0
Methylene Chloride	5.0
Total VOC's	25.0[1]
AROMATICS	
Ethylbenzene	5.0
Dichlorobenzene	5.0
Xylenes	5.0
Total Petroleum Hydrocarbons	50.0
METALS	
Arsenic	20.0
Cadmium	10.0
Chromium (VI)	11.0
Copper	20.0
Cyanide	25.0
Lead	5.6
Mercury	1.0
Nickel	7.1
Silver	2.3
Zinc	58.0

2. The pH of the discharge shall not exceed 8.5 nor be less than 6.5.

3. Toxicity: The survival of rainbow trout in 96-hour bioassays of the effluent as discharged shall be a median of 90% survival and a 90 percentile value of not less than 70%

[1]. The total VOC limit is the sum of all EPA 601 compounds.

B. RECEIVING WATER LIMITATIONS

1. The discharge of waste shall not cause the following conditions to exist in waters of the State at any place:

   a. Floating, suspended, or deposited macroscopic particulate matter or foam;

   b. Bottom deposits or aquatic growths;

   c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;

   d. Visible, floating, suspended, or deposited oil or other products of petroleum origin;

   e. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.

2. The discharge of waste shall not cause the following limits to be exceeded in waters of the State in any place within one foot of the water surface:

   a. Dissolved oxygen: 5.0 mg/l minimum. The median dissolved oxygen concentration for any three consecutive months shall not be less than 80% of the dissolved oxygen content at saturation.

   b. pH: The pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary from normal ambient pH levels by more than 0.5 units.

   c. Un-ionized ammonia: 0.025 mg/l Annual Median (as N) 0.400 mg/l Maximum

3. This discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Board or the State Water Resources Control Board as required by the Federal Water Pollution Control Act and regulations adopted thereunder. If more stringent applicable water quality

standards are promulgated or approved pursuant to Section 303 of the Federal Water Pollution Control Act or amendments thereto, the Board will revise and modify this Order in accordance with such more stringent standards.

C. PROVISIONS

1. The Discharger shall comply with all sections of this order immediately upon adoption.

2. The dischargers shall comply with the Self-Monitoring Program as adopted by the Board and as may be amended by the Executive Officer.

3. The discharger shall also notify the Regional Board if the self-monitoring program results indicate, or if any discharge any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit.

4. This Order includes all items of the attached "Standard Provisions and Reporting Requirements" dated December 1986 except A.10, B.2, B.3, C.8, and C.11.

5. Any noncompliance with a requirement of this Order shall be reported as stated in in section C.10 of the "Standard Provisions and Reporting Requirements" referred to in C.3. above.

6. This Order expires September 20, 1994 and the discharger must file a report of Waste Discharge in accordance with Title 23, California Administrative Code, not later than 180 days in advance of such expiration date as application for issuance of new waste discharge requirements.

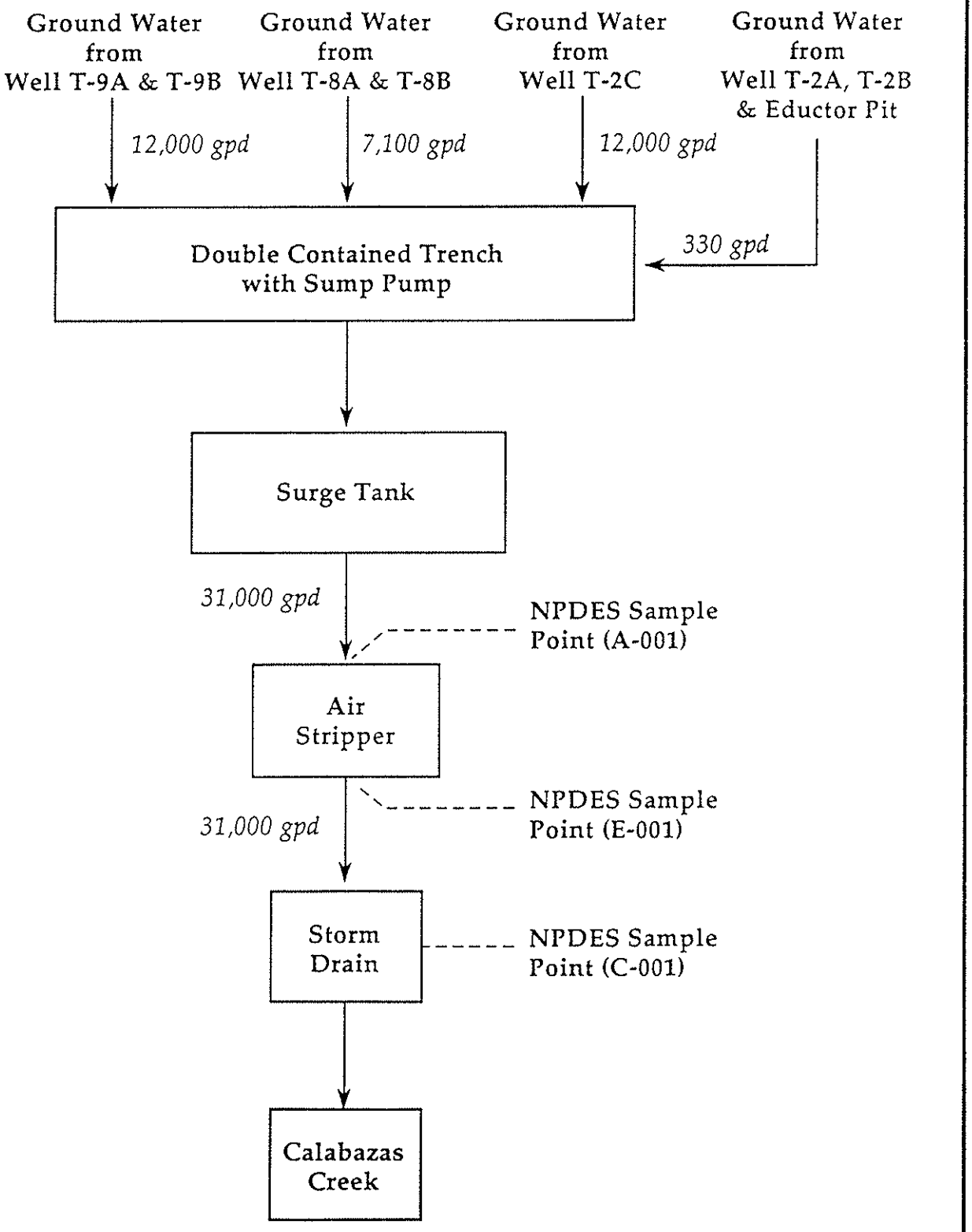
7. This Order shall serve as a National Pollutant Discharge Elimination System permit pursuant to Section 402 of the Federal Water Pollution Control Act, or amendments thereto, and shall become effective at the end of ten days from date of hearing provided the Regional Administrator, U. S. Environmental Protection Agency, has no objection.

8. Order Number 85-120 is hereby rescinded.

I, Steven R. Ritchie, Executive Officer do hereby certify the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region on September 20, 1989.

STEVEN R. RITCHIE
Executive Officer

Attachments: Groundwater Extraction System
Standard Provisions and Reporting Requirements - December 1986
Self-Monitoring Program - December 1986



Item II A. Ground Water Extraction System

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

TENTATIVE

SELF-MONITORING PROGRAM

FOR

TRW, INC.
825 STEWART DRIVE
SUNNYVALE, SANTA CLARA COUNTY

NPDES NO. CA0028886

ORDER NO. 89-146

CONSISTING OF

PART A, dated December 1986 and modified January 1987, including Appendices A through E

PART B, Adopted: September 20, 1989

PART B

I. DESCRIPTION OF SAMPLING STATIONS

A. INFLUENT

Stations	Description
A-001	At a point in the extraction system immediately prior to discharge into the treatment unit.

B. EFFLUENT

Stations	Description
E-001	At a point in the discharge line immediately prior to discharge into the storm drain tributary of Calabazas Creek.
C-001	At a point in the storm drain tributary prior to its flow into Calabazas Creek, and within 200 feet of the discharge point.

II. SCHEDULE OF SAMPLING AND ANALYSIS

A. The schedule of sampling and analysis shall be that given in Table I.

III. MISCELLANEOUS REPORTING

If any chemical additives are proposed to be used in the treatment of extracted groundwater, it shall be reported thirty (30) days prior to their use and documented in the regular quarterly reports.

IV. MODIFICATION TO PART A

A. Deletions:

Sections D.1.a., D.2.a., D.2.f., D.2.g., D.2.h., D.3., E.1.e., E.3., E.4. , and F.2.b.

B. Modifications:

1. D.2.a. Samples of effluent shall be collected at times coincident with influent sampling unless otherwise stipulated. The Regional Board or Executive Officer may approve an alternative sampling plan if it is demonstrated that expected operating conditions warrant a deviation from the standard sampling plan.

2. D.2.d If two consecutive samples of any one constituent or parameter monitored on a weekly or monthly basis in a 30 day period exceed the effluent limit or are otherwise out of compliance , or if the required sampling frequency is once per month or less and the sample or parameter exceeds the limit or is otherwise out of compliance, the discharger shall implement correction procedures acceptable to or approved by the Board or Executive Officer, on a case by case basis.

3. D.2.e. If any instantaneous maximum limit is exceeded, within twenty-four (24) hours of receiving the analytic results indicating the violation, a confirmation sample shall be taken, with analytic results known within twenty-four (24) hours. In the case that the same instantaneous limit is violated in the second sample, the discharge shall be terminated until the cause of the violation is found and corrected.

4. F.2.a. Total flow shall be recorded at least weekly.

5. G.4. Written reports as required under G.4. shall be submitted based on a calendar quarters basis, not later than 15 days following the last day of the quarter.

6. G.4.b. The report format shall be in a form acceptable to the Executive Officer of the Regional Board.

7. G.4.e. The report format shall be in a form acceptable to the Executive Officer of the Regional Board. NPDES Discharge Monitoring Report, EPA Form 3320-1, is provided as guidance.

8. G.5. The annual report shall contain all data required for the fourth quarter in addition to summary data required for annual reporting. This report may be submitted in lieu of the report for the fourth quarter of a calendar year.

I, Steven R. Ritchie, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in the Regional Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Regional Board Order No. 89-146.

2. Was adopted by the Board on September 20, 1989.

3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger and revisions will be ordered by the Executive Officer or Regional Board.

STEVEN R. RITCHIE
EXECUTIVE OFFICER

Attachment: Table 1

TABLE 1
SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station	A-001	E-001	C-001
TYPE OF SAMPLE	G	G	G
Flow Rate (mgd)	W	W	
BOD, 5-day, 20°C, or COD (mg/l & kg/day)			
Chlorine Residual & Dosage (mg/l & kg/day)			
Settleable Matter (ml/1-hr. & cu. ft./day)		Q	Q
Total Suspended Matter (mg/l & kg/day)			
Oil and Grease (mg/l & kg/day)			
Coliform (Total or Fecal) (MPN/100 ml) per req't			
Fish Tox'y 96-hr. % Surv'l in undiluted waste			Y
Ammonia Nitrogen (mg/l & kg/day)			*
Nitrate Nitrogen (mg/l & kg/day)			
Nitrite Nitrogen (mg/l & kg/day)			
Total Organic Nitrogen (mg/l & kg/day)			
Total Phosphate (mg/l & kg/day)			
Turbidity (Jackson Turbidity Units)			
pH (units)	Q	M	Q
Dissolved Oxygen (mg/l and % Saturation)	Q	Q	Q
Temperature (°C)	Q	M	Q
Apparent Color (color units)			
Secchi Disc (inches)			
Sulfides (if DO<5.0 mg/l) Total & Dissolved (mg/l)			
Arsenic (mg/l & kg/day)		Y	
Cadmium (mg/l & kg/day)		Y	
Chromium, Total (mg/l & kg/day)		Y	
Copper (mg/l & kg/day)		Y	
Cyanide (mg/l & kg/day)		Y	
Silver (mg/l & kg/day)		Y	
Lead (mg/l & kg/day)		Y	

SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station	A-001			E-001			C-001						
TYPE OF SAMPLE	G			G			G						
Mercury (mg/l & kg/day)				Y									
Nickel (mg/l & kg/day)				Y									
Zinc (mg/l & kg/day)				Y									
PHENOLIC COMPOUNDS (mg/l & kg/day)													
All Applicable Standard Observations													
Bottom Sediment Analyses and Observations													
Total Identifiable Chlorinated Hydrocarbons (mg/l & kg/day)													
EPA 601	Q			M			Q						

LEGEND FOR TABLE

TYPES OF SAMPLES

G = grab sample
C-24 = composite sample - 24-hour
C-X = composite sample - X hours (used when discharge does not continue for 24-hour period)
Cont = continuous sampling
DI = depth-integrated sample
BS = bottom sediment sample
O = observation

TYPES OF STATIONS

I = intake and/or water supply stations
A = treatment facility influent stations
E = waste effluent stations
C = receiving water stations
P = treatment facilities perimeter stations
L = basin and/or pond levee stations
B = bottom sediment stations
G = groundwater stations

FREQUENCY OF SAMPLING

E = each occurence
H = once each hour
D = once each day
W = once each week
M = once each month
Y = once each year

2/H = twice per hour
2/W = 2 days per week
5/W = 5 days per week
2/M = 2 days per month
2/Y = once in March and once in September
Q = quarterly, once in March, June, Sept. and December

2H = every 2 hours
2D = every 2 days
2W = every 2 weeks
3M = every 3 months
Cont = continuous
* = In the event that toxicity tests do not meet standard